UNIVERSITY OF TORONTO
YORK UNIVERSITY

JOINT PROGRAM
IN TRANSPORTATION

ANNUAL REPORT
1981-1982

JULY 1982

RESEARCH SPONSORS

The following organizations have provided grants or sponsored research since the establishment of the Joint Program in Transportation

ATA Trucking Industry Educational Foundation Inc.

Air Canada

Canada, Ministry of Industry, Trade and Commerce

Canada, Ministry of State for Urban Affairs

Canadian National Railways

Canadian Transport Commission

Dominion Marine Association

Economic Development Institute, World Bank

Energy, Mines, and Resources Canada

Hawker Siddeley Canada Ltd.

Municipality of Metropolitan Toronto

Natural Sciences and Engineering Research Council

The Northern Transportation Company Ltd.

Ontario Ministry of Municipal Affairs and Housing

Ontario Ministry of Transportation and Communications

Ontario Select Committee on Highway Transportation of Goods

Ontario Trucking Association

Roads and Transportation Association of Canada

St. Lawrence Seaway Authority

Toronto Transit Commission

Transport Canada Canadian Air Transportation Administration

Transport Canada Canadian Marine Transportation Administration

Transport Canada Canadian Surface Transportation Administration

Transport Canada Management Training Centre

Transport Canada Strategic Planning Group

Transport Canada Transportation Development Centre

The UPS Foundation

University of Toronto

Urban Transportation Development Corporation Ltd.

VIA Rail Canada Inc.

York University

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JOINT PROGRAM IN TRANSPORTATION

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FOREWORD

The Joint Program in Transportation is a cooperative effort of the University of Toronto and York University organized in 1970 in response to a request for proposals by the Canadian Transport Commission for the establishment of a number of regional university research centres. In July 1976, a formal agreement officially established the Joint Program as the agency for the coordination, promotion and conduct of transportation activities at the two universities.

The principal objectives of the Joint Program are:

- to encourage research relevant to improved transportation in Canada through the influence of research findings on investment planning, policy development, operations, and development of human resources and expertise
- to serve government and the transportation industry as a source of information, expertise and special purpose training programs
- to provide an environment within the two universities that is conducive to high quality teaching and research in the transportation field
- to assist both universities in coordinating teaching programs in the transportation field
- to be self-financing and return a reasonable contribution to university overhead

The basic activities of the Joint Program can be considered under three main categories:

Research - Research is undertaken in response to proposals submitted by faculty members or requests made by external organizations. In some cases, the Director or the Executive Committee also attempt to exert a positive influence on the direction of research activity by establishing research priorities in areas relevant to current Canadian transportation problems and issues.

Funds to support research are generally derived from one of three sources. First, the Joint Program uses a portion of its Transport Canada base grant to support individual faculty members or groups of faculty members who apply. Second, the Joint Program circulates requests for proposals to be submitted to Transport Canada for Negotiated Research Contributions. Joint Program proposals compete with those of ten other Canadian universities for limited funds earmarked for this purpose. Third, the Joint Program is periodically approached by other external private or public organizations to undertake contract research on specific topics. In all three cases, the Joint Program retains the right to publication and requires that the principal investigator(s) produce a final report upon the completion of the research project. There is no obligation for the principal investigator(s) to publish the results in academic journals, although obviously, such publication is encouraged.

Education - The Joint Program has no direct responsibility for teaching programs and does not enrol graduate students. However, assistance is given to individual teaching departments in offering new courses where gaps in the available curricula appear to exist. Periodically, special courses of interest to practitioners in the field are offered. A variety of seminars and conferences are also sponsored.

In addition, the Joint Program provides direct financial assistance to graduate students working on major research papers or theses through a summer student grant program. These awards are made through an annual competition open to students from any discipline. Financial assistance is also provided to graduate students who work as research assistants for individual faculty members. In many cases, this project work is directly related to the student's degree research requirements.

Another important educational activity involves the annual preparation of a brochure that describes the complete range of transportation and transportation-related courses offered within the two universities. The current edition of the course list, for example, shows 186 course offerings in a wide range of teaching departments. Through the efforts of the Joint Program, mechanisms for allowing students to cross-register among departments and between the universities have been greatly facilitated.

While the Joint Program has no formal teaching responsibilities, externally the Program serves as a focus of interest for potential new students who often make their first contact with the Joint Program and who are subsequently directed to the appropriate graduate teaching departments.

Publications - One of the major activities of the Joint Program involves the dissemination of research results through the various publication series including working papers, research reports, special conference proceedings, and major transportation papers or monographs. In addition, a quarterly newsletter is published which serves as a comprehensive source of information on conferences, seminars, and ongoing research in Canada.

During 1982-82, the research capability of the Joint Program was increased by hiring additional research associates. This decision was taken in response to increasing requests from various government agencies to undertake policy-oriented research over relatively short periods of time. One such project related to alternative strategies for improved rail passenger service in the Quebec-Windsor corridor, another to improvement in public transit services in the Greater Cairo region.

Due to budgetary constraints associated with general economic conditions, the Joint Program reluctantly discontinued its Information Services activities, which for many years provided valuable support to graduate students and faculty as well as to practitioners and organizations outside the universities.

R. M. Soberman
Director

ORGANIZATION AND ADMINISTRATION

The management of the Joint Program is responsible for the allocation of general program funds for research support and administrative services, the generation of research proposals consistent with the objectives of the Program, and the identification of educational opportunities and needs both within and outside the university community.

Organizational Structure

To execute these responsibilities, the organizational structure of the Joint Program in Transportation involves three separate groups:

- **the Council**
- **the Executive**
- **the Board of Advisors**

The Council acts on behalf of the administrations of the University of Toronto and York University to ensure concurrence of the activities of the Joint Program with the terms of the formal agreement authorizing its establishment and with general university policies and procedures.

The Executive Committee consists of the Director of the Joint Program in Transportation and three faculty members from each university appointed by the Council. The Director is responsible for the administration of the Joint Program and also serves as Chairman of the Executive Committee. One member of the Executive Committee from each university also serves as Assistant Director.

The Board of Advisors, which consists of members appointed by the Council from the academic, government and business communities, provides advice on an individual basis as solicited by the Council or the Executive Committee.

In addition, support services are provided on the two campuses by an administrative assistant, an editor and secretarial staff. An office of the Joint Program is maintained on each university campus.

Faculty Associates

There are no formal requirements for membership in the Joint Program and all faculty and graduate students in transport-related fields are welcome to participate in the various research and educational activities. Since its inception, a large number of faculty at both universities have obtained research support through the Joint Program. Faculty members involved in transport research and teaching in the two universities include the following:

University of Toronto

Aerospace Studies
- J.D. DeLaurier

Civil Engineering
- P.H. Byer
- M.M. Davis
- E. Hauer
- V.F. Hurdle
- E.J. Miller
- R.M. Soberman
- G.N. Steuart

Chemical Engineering
- D. Mackay

Industrial Engineering
- M.J.M. Posner

Management Studies
- G.S. Day
- L. Fertuck
- G.H. Haines
- R.N. Wolff

Mechanical Engineering
- D.B. Cherchas
- R.G. Fenton

Political Economy
- A. Abouchar
- D.N. Dewees
- D.M. Nowlan

Sociology
- B. Wellman

York University

Administrative Studies
- S.F. Borins
- W.D. Cook
- D. Horvath
- W.A. Jordan
- T.E. Kuhn
- I. Litvak
- C.J. McMillan
- K.J. Radford
- G.C. Shaw
- S.L. Warner
- U. Zohar

Economics
- J.B. Beare

Political Science
- D.V.J. Bell
- E.J. Dosman
- F. Fletcher

Psychology
- P. Stager

Environmental Studies
- G.A.P. Carrothers
- T.J. Cartwright
- M. Chevalier
- G.L.Desfor
- R.G. Macdonald
- R.M. Soberman
- P.F. Wilkinson

Geography
- R. Bordessa
- W.C. Found
- D.B. Freeman
- B.H. Massam
- N.M. McArthur
- H.R. Merrens
- G.B. Norcliffe
- R.I. Wolfe

Social Science
- F. Frisken

Sociology
- A. Turrittin

FUNDING

The Joint Program receives financial support from three sources:

- A general program grant provided by the Strategic Planning Group of Transport Canada
- Contract research
- Direct financial assistance from the University of Toronto and York University

From these sources, faculty and graduate student research is supported in two ways. First, a portion of the Transport Canada general program grant is allocated for the support of individual faculty research projects, awarded directly by the Joint Program. Student grants are also made out of these funds. Both individual faculty grants and student grants are made following a general call for proposals and subsequent evaluation by a special review committee appointed by the Executive Committee.

Second, the Joint Program assists individual faculty members or groups of faculty in preparing proposals for contract research from outside sponsors. One of the principal sources of contract research to date is a special Transport Canada Negotiated Research Fund, established to support research that addresses significant issues in Canadian transportation. The Joint Program competes with other selected Canadian universities for awards from this fund. Proposals for these Negotiated Research Grants are submitted in December of each year.

In addition, contract research is sponsored by other federal, provincial and municipal governments and agencies such as the Ontario Ministry of Transportation and Communications, the Toronto Transit Commission, VIA Rail Canada Inc., and the Urban Transportation Development Corporation.

Funds available from either internal program grants or external contract research are used to cover the costs of faculty release time, summer supplements, research assistants, travel, clerical assistance, computer time, and other supplies and services according to general guidelines established by the research administrations at each university.

During the fiscal year ending April 1982, the Joint Program in Transportation received research support from the following organizations:

Air Canada

Canadian National Railways

Canadian Transport Commission

Dominion Marine Association

Energy, Mines and Resources Canada

The Northern Transportation Company Ltd.

Ontario Ministry of Municipal Affairs and Housing

Ontario Ministry of Transportation and Communications

St. Lawrence Seaway Authority

Transport Canada Canadian Marine Transportation Administration

Transport Canada Strategic Planning Group

Transport Canada Transportation Development Centre

University of Toronto

Urban Transportation Development Corporation

VIA Rail Canada Inc.

York University.

Total revenue from these sources amounted to $420,000 for 1981-82.

RESEARCH IN PROGRESS

This section describes current research in progress during the period 1 July 1981 to 30 June 1982. The first group covers faculty research supported through internal program grants or contract research. The second group identifies student research supported directly by the Joint Program.

GRANTS TO FACULTY MEMBERS

In progress as of July 1, 1981

Collective Bargaining in the Canadian Transport Sector: A Multi-Modal Overview The objectives of this research project are to develop a conceptual framework for the study of collective bargaining in the transport sector and then to apply this framework to the air, rail, and marine modes, with special emphasis on airline pilots, air traffic controllers, railway workers, and ports workers (longshoremen and others). Particular interest is devoted to:

- monitoring conflict levels in the various modes, measured in terms of a conflict-interaction model
- identifying over time and across modes the major issues that arise in negotiating collective agreements
- comparing and evaluating outcomes of collective bargaining
- assessing governmental dispute settlement techniques intended to improve labour relations, particularly since 1976
- describing the changing profile of the work force in the various modes, especially in light of different assumptions about growth and industrial change.

Sponsor: Transport Canada

D.V.J. Bell and E.J. Dosman, Department of Political Science, York University

Propensity Models of Inter-City Transportation Demand* Propensity or trip-generation models have been widely used in intra-city transportation planning. This study deals with their use in another context, the modelling of multi-modal inter-city travel. This study will explore the theoretical relationships between propensity models and multi-modal direct demand models in order to show the ways in which either type of model can be seen as a generalization of the other. Data from the 1972 propensity model of origination-destination air travel at Toronto and a national survey of inter-city passenger travel in 1977-78 will be used to test the stability of propensity coefficients over time, to test hypotheses about propensity models, and to develop more sophisticated and useful propensity models.
Sponsor: Transport Canada
S.F. Borins, Faculty of Administrative Studies, York University

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*Indicates completion.

System Layout and Analysis, TIA Intra-Airport Transportation Study The overall research objective is to generate and evaluate the options for an intra-airport activity centre transportation system for Toronto International Airport as input to the Terminal 3 design process. The research team is required (in the role of a staff consultant) to assist the project study team to prepare sketch layouts of candidate intra-airport circulation systems and to analyze the performance of these systems.
Sponsor: Transportation Development Centre

P.H. Byer, V.F. Hurdle, G.N. Steuart, Department of Civil Engineering, University of Toronto, and E.J. Miller, Joint Program in Transportation.

Labour Relations in the Canadian Urban Transit Industry The aim of this project is to prepare a comprehensive analysis of labour relations in the Canadian urban transit industry. The research is primarily devoted to a series of case studies investigating labour relations in selected urban transit systems across the country. The data collected in the course of these case studies will then provide the basis for examining a number of current issues in transit labour relations: the use of part-time labour, work-sharing, technological change, the impact of different institutional structures on collective bargaining, and the inter-relationships between labour relations and other aspects of transit operations.
Sponsor: Joint Program in Transportation and Transport Canada (as of April 1981)

E.J. Dosman, Department of Political Science, York University, and D.F. Campbell, Graduate Student, Department of Urban and Regional Planning, University of Toronto

A Safety Estimation Tool The number of accidents occurring on a system (city, region, province, country) is the outcome of a complex interaction of many causal factors. Among the more important factors are driver and pedestrian demography, weather, quantity and quality of exposure, the fleet of vehicles and the like. The objective of the proposed research is to create an estimation tool which when fed information about the aforementioned causal factors will produce estimates of the number of accidents, classified by severity, expected on the system. It will also be capable of producing a measure of the uncertainty of estimation. Such a tool would be used:

1) To interpret and explain observed changes in system safety
2) To judge the effects of countermeasures
3) To estimate safety futures.

Sponsor: Transport Canada

E. Hauer, Department of Civil Engineering, University of Toronto

The Process of Innovation in the Urban Transportation Equipment Industry The objective of this study is to examine the structure, conduct and performance of the urban transportation equipment industry, with special emphasis on its technological and marketing performance.

The significance of this study for Canada results from the fact that the buying side of the market for urban transportation equipment is highly

fragmented due to regional (provincial) interests. This market fragmentation tends to undermine the factors which have been identified in the theoretical and empirical studies as promoting the development and diffusion of innovation. Of particular concern is the nature and extent to which the industry's efforts are facilitated and/or obstructed by federal government policies.
Sponsor: Transport Canada

I.A. Litvak, Faculty of Administrative Studies, York University and C. J. Maule, Department of Economics and the School of International Affairs, Carleton University

Transport Policy Analysis Using Classification Procedures The purpose of this research is to develop a formal procedure for classifying alternate transport policies using information on the costs, benefits or impacts of each alternative on a set of criteria. Recent theoretical models which have addressed this problem have tended not to consider the distribution of costs, benefits or impacts over space and time, and among groups, individuals and jurisdictions. This research will seek to rectify these omissions, and thus provide a technique which should have wider application and appeal to transport planners. The utility of the new model will be demontrated using a practical transportation planning problem.
Sponsor: Transport Canada

B.H. Massam, Department of Geography and Urban Studies Program (Division of Social Science), York University

Investigation of Supply Interactions in Transport Demand Modelling The use of random utility choice models in the field of transport demand modelling has expanded considerably over the past two decades. One issue, however, which has been largely ignored in the development of these models, is the extent to which the supply side of the transport system demand-supply interaction must be considered in order to correctly specify and identify the demand function. Ignoring such interactions creates at least the potential for significant biases in model estimations and, hence, in the predictions generated from these models. The purpose of the proposed research is to investigate the extent to which supply interactions must be considered in the construction of travel demand models. This investigation will include: development of a consistent theoretical framework for analysis; identification of major problem areas associated with the modelling of demand-supply interactions; resolution of statistical estimation and data requirement issues associated with these problem areas; and the detailed theoretical and empirical analysis of the identified major problem areas. The ultimate objective of this research is the development of an improved set of travel demand models that are capable of better meeting the analytical requirements of transportation planners.
Sponsor: Natural Sciences and Engineering Research Council Canada University Research Fellowship

E.J. Miller, Joint Program in Transportation

Energy Consumption of Alternative Transport Modes The energy efficiency of a given mode of transport depends upon the physical characteristics of the technology employed, the service characteristics within which it is operated, and the spatial distribution of socio-economic activities which determine the demand for the service. The proposed research focuses upon the first two of these aspects. Drawing upon theoretical understanding of modal fuel consumption relationships and data from operating systems, simple, policy-sensitive models of fuel consumption by mode will be developed for use in the assessment of the efficiency of the different transport modes within various demand contexts.
Sponsor: Transport Canada

E.J. Miller and R.M. Soberman, Joint Program in Transportation

The Analysis of Conflict Over the Location of Airports near Major Population Centers This project describes a number of controversies which arose over the location of airports near major population centers in terms of a recently suggested model of conflict resolution. Based on the results of these comparative case studies, a general model is derived to provide prescriptions for some of the concerned parties and for a more efficient resolution process. Recommendations are given against the background of Canadian concerns over power-sharing between provincial governments and the federal government and of the continuing "westward shift" of economic activities in Canada.
Sponsor: Transport Canada

K.J. Radford, Faculty of Administrative Studies, York University

The Application of Urban Transportation Modelling to Developing Countries Over the last twenty years urban transportation demand modelling techniques have been developed and tested in a wide variety of planning situations in North America. Given that the era of rapid urban growth and infrastructure construction is now disappearing, it would appear that there are many potential advantages to the application of this accumulated experience and expertise to other countries which are faced with rapidly growing cities. Direct transferability of these techniques is not likely to be possible, so that discriminating use must be considered. The purpose of this project is to assess the transferability of urban transportation demand modelling for North American experience to urban areas in developing countries, given inherent differences in political context, socio-economic conditions, transportation mode usage, and data availablility.
Sponsor: Joint Program in Transportation

R.G. Rice, Department of Civil Engineering, University of Toronto

Development of an Intercity Transportation Model for Educational Use The student of transportation planning is able to understand the planning process, its inputs, and possible outputs much better if presented with an opportunity to work through the entire process with a realistic but manageable numerical example. The method which is selected to accomplish this objective is one which has been proven in earlier attempts and involves the

development of a computer-based package which requires the student to conduct a simulated survey, calibrate a demand model, specify a supply model that includes an addition to the hypothetical system, establish transport flows at a supply-demand equilibrium and study the performance measures that result.
Sponsor: Transport Canada

R.G. Rice and G.N. Steuart, Department of Civil Engineering, University of Toronto.

A Simulation Model of Vessel Requirements, Utilization and Costs for Future Great Lakes Grain Movements* This research will show the use of a computer simulation model in estimating for each of a number of future possible combinations of eastward grain and westward ore tonnages, the number of vessels required, their operating costs and the resulting transport cost for a bushel of grain. These estimates will be used to determine the degree to which prospective imbalances between these cargoes could affect the economic viability of Seaway grain movement.
Sponsor: Dominion Marine Association, Canadian Transport Commission and Transport Canada

G.C. Shaw and W.D. Cook, Faculty of Administrative Studies, York University

Energy Efficiency in Transport Recent concerns about energy shortages have focused on transportation as one of the primary users of fuels in North America. Concern about inefficient use of energy has resulted in a number of important policy directions by national and provincial governments. Such policies, which are based on assumptions about the relative efficiency of different modes of transportation, may be subject to considerable scrutiny simply because energy efficiency is not merely a function of the physical characteristics of a particular technology. The utilization of that technology, as dictated by demand patterns, can and does have a significant influence on the energy budget.

The research is designed to determine the conditions under which various modes of transportation perform more efficiently from the standpoint of energy consumption and to use the findings as a more substantive basis for indicating appropriate policy direction.

The procedure will first analyze the energy requirements of different modes of transportation from first principles. Second, the conditions which influence the utilization of different modes of transportation (including demand patterns and spatial structure) will be studied to assess the comparative performance of different modes under a variety of spatial and economic conditions. The third part of the research will deal with alternative policy directions for achieving greater energy efficiency in the transport sector.
Sponsor: Natural Sciences and Engineering Research Council

R.M. Soberman, Joint Program in Transportation

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*Indicates completion.

The Journey to Community This project examines the interrelationship of contemporary Ontario community life with travel and communications behaviour.

Recent sociological research indicates that many important community ties extend well beyond the neighbourhood, and that social services and support often come from non-local sources. Such technological developments as the automobile, transit and the telephone--in conjunction with the large-scale effects of bureaucratization, capitalism, industrialization and urbanization--have decreased the role of the neighbourhood as the basis for contemporary Canadian community life. In place of local, solidary communities, Canadians are now more apt to have differentiated, multiple communities which are quite dispersed in space.

Such dispersed communities are closely related to travel behaviour. However, travel behaviour studies to date have concentrated on the journey to work, the source of most peak demand, while studies of nonwork travel have focused on leisure and shopping. This study will:

1) examine the impact which such spatially dispersed communities have on travel and communications behaviour;
2) compare the functioning of communities maintained at the local neighbourhood level (pedestrian or short trip), maintained at the metropolitan level (automobile, telecommunications, transit), or maintained at long distances (telecommunications, airplane, automobile).

Sponsor: Joint Program in Transportation

B. Wellman, Department of Sociology, University of Toronto

Awarded in the Period 1 July 1981 to 30 June 1982

Network Pricing and Scheduling for Estimating Transport Demand Functions The impact of current pricing and scheduling decisions in terms of their potential for improving future decisions is an essential input to long term optimal price/schedule planning for a transportation network. This study proposes to consider the consequences of various pricing/scheduling changes for information purposes. A model will be developed, computerized and tested for obtaining improved estimates of transportation demand functions based on price and schedule considerations. The model should be of relevance for a wide variety of urban, national and international transportation systems.

Sponsor: Transport Canada

W.D. Cook, G.C. Shaw and S.L. Warner, Faculty of Administrative Studies, York University.

An Investigation of Airship Survivability in Atmospheric Turbulence and Extreme Manoeuvres The purpose of this work is to quantitatively assess the survivability of modern airships in atmospheric turbulence, including storm conditions. This will be accomplished with a non-linear flight-dynamic simulation which gives the airship's motion response and structural loads for

specified control and turbulence inputs. The simulation will be applied to certain proposed modern airships, and the results will show their margins of safety, and how these are influenced by their relative design characteristics. From these, conclusions will be reached on the safety and desirable design directions for modern airships; and this work will provide an analytical method for the evaluation of such designs.
Sponsor: Transport Canada

J.D. DeLaurier, Institute for Aerospace Studies, University of Toronto

Intercity Passenger Travel - A Behavioural Study The project represents an attempt to rethink current approaches to intercity travel demand modelling, beginning at a very fundamental, explicitly behavioural, level. Key behavioural issues involved in such an approach include: obtaining a clear understanding of the **travel markets** which exist within the intercity transport systems; obtaining a clear understanding of the **decision processes** at work within each of these markets; and working at a level of analysis that is sufficiently disaggregate to enable one to hypothesize and test "causal" factors and inter-relationships. The major objectives of the proposed research are: to develop a coherent, consistent theory of intercity passenger travel behaviour; to assess techniques and data currently available to operationalize this theory into practical planning models; and to undertake a limited number of pilot studies in order to test the data collection procedures proposed and to provide preliminary tests of the travel behaviour theory developed.
Sponsor: Transport Canada

E.J. Miller and R.A. Wolfe, Joint Program in Transportation

A Work Program for the Collection of Canadian Household Data Relating to Automobile Ownership, Trip-Making and Transport Fuel Usage The Joint Program has received this grant to perform research in the area of Canadian gasoline consumption. The research involves the development of a coordinated set of models describing household automobile ownership decisions and their subsequent trip-making behaviour. Data obtained from a nation-wide survey of Canadian households will provide the basis for the development and calibration of the models. The first phase of the project, due to be completed by April, 1983, will involve the theoretical development of the models, the design and execution of the survey, an exploratory analysis of the survey data, and the development of the first version of the models. An expected second phase of the project will involve refinement of these models and the use of the modelling system to explore a range of transportation policies concerning gasoline conservation, including fleet composition regulations, gasoline pricing strategies and public transit subsidy programs.
Sponsor: Energy, Mines, and Resources Canada.

E.J. Miller, R.A. Wolfe, Joint Program in Transportation, N. Gallini, M.K. Berkowitz, Institute for Policy Analysis, University of Toronto

Cairo Transport Authority In cooperation with the Urban Transportation Development Corporation, the Canadian International Development Agency and the World Bank, the Joint Program in Transportation has been retained to provide advisory services to the Cairo Transport Authority regarding the preparation of a five-year investment plan. This plan is aimed at improving the level of service for the existing system and developing preliminary plans and concepts for expansion over a five- to ten-year period to serve a number of emerging growth centres within the Cairo metropolitan region. While there have been innumerable studies of urban transportation problems within and around Cairo over the last decade, the principal focus of the current review is to prepare an implementation plan that is sensitive to both the fiscal and human resources that are likely to be available over the coming five-year period.
Sponsor: Urban Transportation Development Corporation

R.M. Soberman, G.N. Steuart, A. Cubukgil, E.J. Miller, R.A. Wolfe, R. Ridout, and S.M. Houghton, Joint Program in Transportation

Rail Passenger Corridor Study Via Rail Canada Inc., the Crown corporation responsible for rail passenger services in Canada, is currently undertaking an assessment of various improvements to rail passenger services in the highly populated Quebec-Windsor corridor. As a component of this overall assessment of improved services, the Joint Program in Transportation has recently been retained to assist Via Rail in assessing a variety of external impacts associated with various levels of service.

The Joint Program's responsibility relates to the development of an overall work plan and the coordination and integration of a number of separate sub-studies concerned with such external impacts as energy conservation, industrial and manufacturing activity, regional development and tourism, safety, environmental impacts, and possible effects of improved rail service on government expenditures for other modes of inter-city passenger transportation.
Sponsor: Via Rail Canada Inc.

R.M. Soberman, G.N. Steuart, A. Cubukgil, E.J. Miller, R.A. Wolfe, R. Ridout, and S. Houghton, Joint Program in Transportation

The Role of Negotiation in the Formulation and Implementation of Policy This project is designed to investigate the nature of the policy-making process as it exists, and as it might be modified in multi-participant situations. In such situations, policy is not usually satisfactorily established by one participant alone. Stable policies are formulated after a period of negotiation with participants that have the power to influence the outcome of initiations taken by others. The project consists of descriptive studies of past multiple-participant transportation policy situations and some prescriptive work on current situations of that nature.
Sponsor: Transport Canada

K.J. Radford, Faculty of Administrative Studies, Atkinson College, York University

Transportation and Seniors in Ontario* This research addresses two issues: current and future behaviour and needs of seniors in Ontario; and likely transportation innovations and their possible impacts on transportation for Ontario's seniors.

The report begins with a brief demographic description of seniors in Ontario today, and continues with some trend forecasts to the year 2031. These trends indicate that the elderly will increase in number faster than general population growth rates. Lifestyle groups among the elderly population are then defined and the percentages of the senior population in each group are explored through various possible future scenarios. Current and future transportation needs of each lifestyle group are then discussed.

In terms of the second issue, three types of innovation (technological, organizational and service-related) are examined for each of five modes (automobile, fixed-route public transit, "special transit", walking, and cycling). Major conclusions include: organizational innovations appear to be particularly promising as a cost-effective means of addressing a number of seniors' transportation needs; special transit has a particularly important role to play given that a majority of seniors are expected to continue to have limited or no access to the automobile; and technological innovations, although important, will not in themselves be sufficient to meet the transportation needs of seniors.

Sponsor: Ontario Ministry of Municipal Affairs and Housing

R.A. Wolfe, E.J. Miller, A.L. Poole, D. Kotzer-Jacobs, Joint Program in Transportation

GRANTS TO STUDENTS

Awarded prior to July 1, 1981

An Evaluation of Daily Travel Time and Monetary Travel Budgets in Several Cities of the Developing World The project examines the concept of the transferability between cities of daily travel time and monetary travel budgets. Individual attention is paid to the factors which may influence its variability, especially with regard to urban structure and transportation supply. These daily travel budgets have been hypothesized to form constant proportions of the day and the income of an individual respectively and to remain so over time and space. Empirical evidence strongly suggests that they are also constant between cities. Their stability between cities is most useful, in that it would provide a transferable characteristic by which travel could be evaluated. This, then, would be a potentially useful concept to be applied in cities of the developing world.

N. Atchison, Department of Civil Engineering, University of Toronto

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*Indicates completion.

Forecasting Demand for Inland Waterway Transportation in the River Plate Basin* This project explores possible methodologies for dealing with an example of a typical development problem. A series of major projects in a river basin involving the construction of several dams will affect both the cargo transportation system in the region and the spatial structure of demand. The practical problems revolve around the choice of modelling procedures that can deal with these two development impacts simultaneously, and in the broadest sense, to include such effects as the possible expansion of cargo hinterlands and the restructuring of the primary economy.

The main thrust of the summer's work is to compare the real problem of the River Plate Basin against the variety of solutions put forth in the literature. Initially the theoretical contributions of economics, geography and engineering will be examined, followed by a review of case studies of similar development programmes. The final goal is to isolate the most appropriate methodology for dealing with forecast of demand in the River Plate Basin cargo transportation system and to sketch out steps necessary for its implementation.

J. Barbero, Department of Geography, University of Toronto

The Failure to Enforce Trucking Regulation in Ontario Regulation of the trucking industry has come to the forefront as one of the most controversial issues of government administration for two main reasons: the movement towards economic deregulation in the United States; and critical flaws in the current regulatory practice subscribed to in Ontario. The research focus is at the operational level of the current regulatory system and the failure to enforce the law. The problem is examined primarily at the regional operations level through analysis of proceedings in twenty-five judicial districts within four operating regions (including all major interprovincial points). This study, thus, seeks to identify the underlying reasons behind a poorly enforced regulatory system.

M.E. Bench, Osgoode Hall Law School, York University

The Introduction of Airline Regulation in Canada* Legal regulation of Canadian airlines commenced in 1938, the same year in which regulation was introduced in the United States. Instead of establishing a new commission, such as the Civil Aeronautics Board, Canada incorporated airline regulation within an existing structure for the regulation of railroads. The Board of Railway Commissioners was renamed the Board of Transport Commissioners in order to acknowledge this incorporation.

A number of questions regarding the introduction of airline regulation in Canada ought to be addressed. Why did Canadian authorities decide to impose airline regulation in 1938? Was it a response to American initiatives? Why did Canada not create a separate agency for airline regulation? Which individuals took the initiative to introduce regulation within this industry, and why did they believe it to be imperative? How was

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*Indicates completion.

airline regulation originally conceived? Was it supposed to advance the interests of consumers, of producers, or of the public? To what extent did Canadian airline regulation differ from American airline regulation in 1938? Was airline regulation originally concerned with prices, with entry and exit, with both, or with neither? And how did airline regulation fit within contemporary Canadian transport policy?

W. Calleya-Cortis, Faculty of Administrative Studies, York University

Traffic Count Systems and Programmes: A Review of Present Practice and Future Directions* Traffic count systems and programmes provide data which is needed for a variety of transport planning and management tasks. The main objective of the proposed research is to review the design and functioning of existing urban and interurban count systems in Canada and abroad. Systems will be examined in terms of a) technology and equipment; b) design and operation; and c) data uses and methods of analysis. Information will be collected through review of published literature, correspondence with selected agencies, and personal interviews.

I. Geva, Department of Civil Engineering, University of Toronto

The Development of Urban Transit in the USSR* This study considers the post-war evolution, present administration and problems of public urban transit in the USSR. Tangible evidence of successes and failures in urban transportation are drawn from both national statistics and a representative cross-section of Soviet cities (large and small, old and new, and Slavic and non-Slavic). The research outlines the following facets of urban transport development and operations in the USSR: institutional framework of Soviet urban transport; the main features in the development of public transit after the Second World War; technological changes and factors affecting the modal split; the quality of public transit services, problems in coordinating, financing, pricing and performance criteria. The report is concluded by summary remarks about the Soviet record in developing and implementing urban transit policy, and the relationship between the reality of the Soviet urban transport and the alleged advantages of a centrally planned economic system.

G.I. Ozornoy, Department of Urban and Regional Planning, University of Toronto

The Impact of Containerisation on the Spatial Characteristics of the Port Hinterlands of Halifax and Montreal Technological developments in maritime transportation, namely the containerisation of general cargo, has led to a radical change in the port geography of eastern Canada. This research concentrates on the two major container ports of Halifax and Montreal. The increasing competition between these two ports is examined by investigating the spatial extent and commodity mix of their respective hinterlands. In doing so, the importance of the hinterland in determining port growth and

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*Indicates completion.

development is assessed in comparison with other factors, such as the location of the port in relation to maritime space, the foreland and the physical and human characteristics of the port itself.

An assessment will be made of the implications of the proposed move by Dart Containerline from Halifax to Montreal, both in terms of the effects on the quality of service provided to the Maritimes and the changes in the hinterland infrastructure of Montreal. The research also examines this aspect of competition between Montreal and Halifax in terms of port investment stategies and the viability of the second container terminal at Halifax. Trade diversion between Canadian and U.S. ports is studied and the quantities and route characteristics of these flows are evaluated. Finally, an evaluation is made of the number of containers destined for the Halifax region as this has an important bearing on the economic impact of the container terminal.

A.O. Parry, Department of Geography, University of Toronto

The Alaska Highway Pipeline - An Examination of its Benefits and Costs The decision by the National Energy Board, and subsequently the Canadian government, to support the application for the "Alcan Pipeline Project" has raised a number of questions which remain to be answered. For instance, there is some question as to whether the project will provide gas transmission at lowest possible costs, using a fifty-six inch thin walled pipe, if the Dempster Lateral to transport Mackenzie Delta gas is not built. There are reports that the decision to use fifty-six inch pipe will result in a net gain in employment in the steel industry of 4,000 jobs. Is this in fact true?

The Canadian Arctic Gas Pipeline proposal presented some economic impact analysis and various government and consulting groups attempted to quantify some of the benefits associated with the project. The Alcan Pipeline Project has not been subjected to this kind of analysis. This study attempts to quantify some of the benefits and costs associated with the Alcan proposal. From this analysis it is hoped that some conclusions can be drawn as to the net benefit or loss to the Canadian economy of a transportation project of a magnitude similar to the Canadian Pacific Railway, the Trans-Canada Pipeline and the St. Lawrence Seaway.

J.A. van Egteren, Department of Political Economy, University of Toronto

Transportation, Economic Development and Integration: The Andean Amazon Basin 1965-1990 The Andean Amazon Basin, a resource-rich region comprising over 2 million km^2, remains isolated from the economic mainstream of the Andean common market countries, despite the fact that the region is endowed with a large fluvial system, and despite the construction of the Marginal Highway. Economic, demographic and geo-political considerations have committed the Andean Group to a policy of rapid, but harmonious, development of the region. Transportation could make a significant contribution. At present, Canadians are helping with port construction in the Peruvian Amazon region, and also co-operating in the application of remote sensing techniques. By assessing expected developments, this research aims to present guidelines for the comprehensive, and

ecologically sound, development of the region. It may contribute towards a unified, effective Canadian presence in the area.

R. Zisman, Faculty of Environmental Studies, York University

Awarded in Spring of 1982

An Analysis of Snow Clearance Routes in the City of North York The success of the operation of a public service--ie. snow removal, snow clearance, waste removal, street cleaning, and fire protection--is determined by factors such as cost, quality, quantity, time, equity and efficiency of service. In addition to these factors is the route network by which such services are delivered to the public. The research to be done will evaluate the snow clearance route network in the City of North York in order to see, by means of Shortest Path Algorithm, if the route operation can be made more efficient. Specifically, the present paths, length of route, time of route coverage, shape of route, and type of route will be analyzed. It is expected that different patterns of route coverage will yield more or less efficiency in the whole operation.

F. Aquila, Department of Geography, York University

The Air Transport Board, 1944-1967 In 1944 the Canadian federal government created the Air Transport Board, and gave it a mandate to regulate the air transport industry--a mandate that lasted until 1967. During the Air Transport Board's reign, the Canadian air transport industry witnessed two significant developments, which have remained fundamental to the present industry. Firstly, the regional airline industry was spawned, and it matured at this time. And secondly, the mainline route was transformed into a duopoly in 1959, when Canadian Pacific Air was given a share of this market.

The study assesses the contribution of the Air Transport Board to transportation and regulatory development in Canada by addressing a number of thematic lines of inquiry, including: the issue of regulatory freedom from government; the idea that a regulatory agency may act as a forum of arbitration between publicly owned and privately owned enterprises; the extent to which regulation may foster administrative procedural efficiency; the degree of intermodal and intramodal competition within both the mainline and regional airline industries; entry controls in both these industries; and regulatory theory, especially as it pertains to air transport development.

W. Calleya-Cortis, Faculty of Administrative Studies, York University

The Effects of Schedule Policy on the Waiting Times of Transferring Passengers This research project is an investigation of how the waiting times of transferring transit passengers are affected by different service frequencies and scheduling policies. Scheduling methods, such as the timed-transfer concept and non-coordinated transit services, will be compared to determine when they are appropriate for use. A survey will be designed to

observe the arrival times of transferring passengers at transit centres under different service frequencies and scheduling policies. The data will be collected and statistically analyzed. A report summarizing the results and conclusions will be compiled.

J.W. Devney, Department of Civil Engineering, University of Toronto

Transportation in China The development of its transportation network is a crucial part of China's drive to modernize by adopting western technology. Despite the implications that this has for the West, the state of knowledge on transportation in China is exceedingly poor. This is certainly true in a technical sense, and the lack of knowledge is often exacerbated by attitudes resulting from the great political, cultural and linguistic differences. Because the best references in this field often can only give estimates or are in error, this research will attempt to improve this situation by analysing the English and Chinese sources which I compiled while working in this area for over two years, and further by reviewing the development of the past year.

J. Dion, Faculty of Environmental Studies, York University

Transit Priority Time Savings Evaluation This study examines the effect of transit priority techniques on total trip time by applying a general reduction factor to empirical delay data for transit systems in Kitchener, Hamilton and Toronto, Ontario.

Through observations of delays due to traffic congestion and traffic signals, the study provides evidence on the potential of priority schemes to reduce total trip time to/from the CBD. Observations are made in each of the three systems during peak-hour trips and the data and reduction calculations are used to reduce the existing isochrone map, providing graphic evidence of the priority measures' effect.

Further analysis compares the reduction in delays to passenger service time to show the measures' potential to increase parity between transit and the auto in the transportation network. Potential fuel savings at intersections are discussed.

D.J. Fletcher, Faculty of Environmental Studies, York University

Deriving Origin-Destination Information from Traffic Counts and Small Sample Surveys Origin-destination flow tables are basic information for traffic management and transport planning tasks. While it is relatively simple and inexpensive to measure traffic volumes on the roads, information about the origins and destinations of trips is not easily recorded, and the process is expensive and time consuming. A procedure which estimates origin-destination flows from a cordon study has already been developed. The objectives of the proposed research are to develop a method to derive origin-destination estimates for an entire area based on collected traffic counts and small sample surveys and to investigate the sample size required for these surveys.

I. Geva, Department of Civil Engineering, University of Toronto

Urban Transportation Planning in the USSR: A Policy Analysis This project describes and discusses the present approach to the planning of urban transport systems in the USSR. The discussion draws mainly upon the evidence from Soviet publications concerned with the problems and policies of urban transportation.

The project is organized around the following facets of the subject: a brief outline of Soviet urban transport providing data on urban passenger transport growth, modal split, and the level of private car ownership and usage in cities; an identification of goals and objectives and their modification over time; an examination of current problems in Soviet urban transport planning; an evaluation of current policies dealing with public and private transport, and land-use patterns; and an organization of transportation planning. The study is concluded with a summary of the USSR's record in formulating a coherent and comprehensive package of policies for the planning of urban transportation.

G.I. Ozornoy, Program in Urban and Regional Planning, Department of Geography, University of Toronto

Disaggregate Mode Choice Model for Metropolitan Toronto Home-Based Work Trips The objective of this research is twofold: first, to develop a data set suitable for discrete choice modelling of modal choice for work trips in Metropolitan Toronto; and second, to use the data set to study modal choice characteristics for home-based work trips using a disaggregate multinomial logit model.

Due to data limitations, the study will be conducted in two stages. The first will study non-CBD destined work trips using data collected in the 1980 Metropolitan Toronto Employee Travel Survey. If time permits, the second stage of the research will study the mode-choice characteristics of CBD-destined work trips from data collected as part of the 1975 City of Toronto Central Area Parking and Loading Study.

First, a general mode-split model will be developed for non-CBD trip ends. Once a satisfactory base model has been developed the question of occupational differences in mode choice will be addressed. The predictive accuracy of the occupational models will be compared to that of the base model. Comparison of the estimated parameters for the occupation models will indicate if the occupation groups exhibit different characteristics in their choice between CBD and non-CBD destined work trips.

D.R. Ross, Department of Civil Engineering, University of Toronto

EDUCATIONAL ACTIVITIES

Although the Joint Program functions primarily as a research centre and has no formal teaching responsibilities, it does support educational activities in the two universities in a variety of ways.

Opportunities for Graduate Students

The Joint Program provides financial assistance to graduate students who work as research assistants on specific projects funded out of either internal program grants or external contract research. In addition, the Joint Program offers a limited number of **Student Summer Grants** of up to $3500 on the basis of an internal competition. **Student Small Grants** to cover incidental costs associated with thesis research and preparation are also available. Applications for these small grants are made through the student's thesis supervisor.

Recipients of **Student Summer Grants** in 1981 were:

J. Barbero, Department of Geography, University of Toronto
M.E. Bench, Osgoode Hall Law School, York University
W. Calleya-Cortis, Faculty of Administrative Studies, York University
I.Geva, Department of Civil Engineering, University of Toronto
E. Lee, Department of Sociology, University of Toronto
G.I. Ozornoy, Department of Urban and Regional Planning, University of Toronto
A.O. Parry, Department of Geography, University of Toronto
M.M. Sabula, Department of Geography, York University

In 1982 the recipients were:

F. Aquila, Department of Geography, York University
W. Calleya-Cortis, Faculty of Administrative Studies, York University
J.W. Devney, Civil Engineering, University of Toronto
J. Dion, Faculty of Environmental Studies, York University
D.J. Fletcher, Faculty of Environmental Studies, York University
I. Geva, Civil Engineering, University of Toronto
G.I. Ozornoy, Department of Geography, University of Toronto
D.R. Ross, Civil Engineering, University of Toronto

In addition, Canadian residents registered as graduate students in some area of transportation are eligible to apply for fellowships awarded annually by Transport Canada. These fellowships provide $9,500 for Master's level degree candidates and $10,000 for Ph.D. students.

During the 1981-82 academic session Transport Canada Fellowships were awarded to:

E. Della Penna, Aerospace Studies, University of Toronto
D.M. Munro, Civil Engineering, University of Toronto

E.N. Solowka, Aerospace Studies, University of Toronto
D.W. Zingg, Aerospace Studies, University of Toronto

In 1982, the recipients were:

S. Brice, Geography, University of Toronto
J. Bryne, Applied Science, University of Toronto
W. Calleya-Cortis, Administrative Studies, York University
R. Long, Civil Engineering, University of Toronto
D. Munro, Civil Engineering, University of Toronto
R. Patrick, Mechanical Engineering, University of Toronto
D. Zingg, Aerospace Studies, University of Toronto

Canadian Transit Handbook, Second Edition

Editing of a series of working papers prepared under the auspices of the Transport Canada Surface Transportation Administration was initiated in June 1978, to produce a comprehensive manual, suitable for use as a text or reference for postgraduate courses in public transportation at Canadian universities. Additional material was also prepared for inclusion in the manual, which was published in August 1980. The Roads and Transportation Association of Canada and the Canadian Urban Transit Association have now adopted the Handbook as an official publication to be revised periodically with the assistance of the Joint Program.

Proceedings of the Eighth International Symposium on Transportation and Traffic Theory

The Eighth International Symposium on Transportation and Traffic Theory was held at the University of Toronto, June 24-26, 1981. Subsequently the Editors, Professors V. Hurdle, E. Hauer, and G. Steuart came to an agreement with the University of Toronto Press to publish the papers, and then the lengthy process of editing and correcting was begun. The final version of these papers is scheduled to appear early in January 1983.

Issues in Canadian Transportation Policy

In co-operation with the Department of Political Science at York University, the Joint Program sponsored a credit course entitled "Issues in Canadian Transportation Policy" under the direction of Professors E.J. Dosman and S.F. Borins. Some of the lectures in this course were open to the public and are listed under Joint Program Seminars.

Joint Program Seminars

The following public seminars were sponsored by the Joint Program during the period covered by this **Annual Report:**

28 January 1982	**Rail Service Rationalization** J. Heads, Executive Director Railway Transport Committee Canadian Transport Commission
4 February 1982	**Urban Transportation Policy** J. Pill, Executive Director Planning Department Toronto Transit Commission
25 February 1982	**Grain Transportation** P. Earle, Assistant Coordinator Information Systems Grain Transportation Authority
4 March 1982	**Role and Responsibilities of Transport Canada and the CTC** A. Kroeger, Deputy Minister Transport Canada
11 March 1982	**Transport Crown Corporations: Role, Financial Control and Accountability** J. Gratwick, Vice President Corporate Affairs Canadian National Railways
1 April, 1982	**Federal-Provincial Relations and Transport Policy in the 1980's** N. Mulder, Asst. Deputy Minister Strategic Planning Transport Canada H. Gilbert, Deputy Minister Ministry of Transportation and Communications

Graduate Studies in Transportation

A separate publication of the Joint Program lists courses and programs that have been identified by the department and faculty concerned as being directly related to transportation. A selected list of subjects is provided below as a sampling of the range of course offerings available in the two universities at both the graduate and undergraduate levels. Mechanisms exist for graduate students in one university to register for particular credit courses in the other university.

UNIVERSITY OF TORONTO

AEROSPACE STUDIES (Graduate)

AER 502B	Stability and Control of Aircraft/L.D. Reid
AER 1106S	Flight Transportation Technology/L.D. Reid
AER 1122S	Suspension Systems for Guided Vehicles/P.A. Sullivan
AER 2057H	Structural Qualification of Civil Aircraft/R.C. Tennyson

CIVIL ENGINEERING (Graduate)

CIV 530F	Traffic Engineering/V.F. Hurdle & P. Bunt
CIV 531F	Introduction to Transportation Planning/G.N. Steuart
CIV 532S	Highway and Airport Materials/M.M. Davis
CIV 1001F	Transportation Engineering/G.N. Steuart & V.F. Hurdle
CIV 1002S	Road Safety/E. Hauer & M.M. Davis
CIV 1033S	Analysis of Transport Operations/V.F. Hurdle
CIV 1035S	Transportation and Development/E.J. Miller & R.A. Wolfe
CIV 1036F	Functional Design and Management of Transport Operations/E. Hauer
CIV 1038S	Transportation Demand Analysis/G.N. Steuart & E.J. Miller
CIV 1081S	Pavement Design/M.M. Davis
CIV 1091S	Characteristics of Public Transit Systems/ R.M. Soberman & V.F. Hurdle

CIVIL ENGINEERING (Undergraduate)

CIV 330S	Transportation Systems/Transportation staff
CIV 432S	Highway Engineering/M.M. Davis
CIV 530F	Traffic Engineering/V.F. Hurdle
CIV 531F	Introduction to Transportation Planning/G.N. Steuart

ELECTRICAL ENGINEERING (Graduate)

ELE 1022S	Electric Propulsion/G.R. Slemon

MECHANICAL ENGINEERING (Graduate)

MEC 1020F&S	Guided Ground Vehicle Dynamics/staff

FORESTRY (Undergraduate)

FOR 357F	Forest Roads/D.V. Love & V.G. Smith

GEOGRAPHY (Graduate)

GGR 1603X	Transportation Systems/A. Lea
GGR 2603Y	Advanced Seminar in Transportation Geography

GEOGRAPHY, PROGRAM IN PLANNING (Graduate)

PLA 1901H	History of Planning/H. Blumenfeld
PLA 1902H	Metropolitan Planning/H. Blumenfeld
PLA 1001H	Introduction to Planning Theory & Practice/A. Roweis & G. Gad
PLA 1504H	Municipal Land Use Planning/S. Roweis
PLA 1701H	Regional Development/R. White

GEOGRAPHY (St. George Campus) (Undergraduate)
GGR 324S Geography of Urban and Regional Transportation/ A. Lea

GEOGRAPHY (Erindale College) (Undergraduate)
GGR 324S Geography of Urban and Regional Transportation/R.R. White

LAW
LAW 337S Regulation/Prof. Trebilcock & Halpern

MANAGEMENT STUDIES (Graduate)
BUS 2405 Production and Distribution Systems
BUS 2411 Dynamic Optimization
BUS 2508 Marketing and Distribution of Natural Resources

POLITICAL ECONOMY (Graduate)
ECO 2605S Theory of Project Evaluation/A. Abouchar
ECO 3100F Economics of Transportation/A. Abouchar
ECO 3200Y Urban Economics I/J. Bossons

YORK UNIVERSITY

ADMINISTRATIVE STUDIES (Graduate)
ECON 612 Economic Effects of Government Regulation/ W.A. Jordan
MGTS 660 Canadian Transportation Issues/G.C. Shaw

ECONOMICS (Graduate)
ECON 532.3 Urban Transportation
ECON 534.3 Project Evaluation Techniques/J.C. Evans
ECON 547.3 Urban Economics/G. Fallis
ECON 548.3 Regional Economics/C. Paraskevopoulos

ENVIRONMENTAL STUDIES (Graduate)
ES 690.03 Urban Transportation Planning in Developing Countries

GEOGRAPHY (Graduate)
GEOG 531.3 Applied Transportation Geography/D. Freeman
GEOG 534.3 Locational Analysis in Rural Geography/W.C. Found

POLITICAL SCIENCE (Graduate)
PS 500.3W Urban Political Systems/M. Goldrick
PS 565.3W The Canadian North/E. Dosman

PUBLICATIONS

Throughout the year, sponsored activities, research, courses, and general transportation information are published in one of six series. The following is a complete list, to date, of all available publications sold by means of written, prepaid request (see page 41 for ordering instructions).

Research Report Series	PRICE
1 - **An Index of Railway Freight Rates by Region and by Rate Categories: 1954-1968** N.T. Jazairi, York University, October, 1971. 32 pp.	$ 4.00*
2 - **Modelling the Impact of Proposed Transportation Networks on the Toronto-Centred Region** I.J. Lord and J.R. Miron, University of Toronto, October, 1971. 30 pp.	3.50*
3 - **A New Approach to Network Generation and Map Representation: The Linear Case of the Location Allocation Problem** R.D. MacKinnon and G.M. Barber, University of Toronto, October, 1971. 24 pp.	3.50
4 - **Reflections on Citizen Involvement in Urban Transportation Planning: Towards a Positive Approach** W.A. Steger, President CONSAD Research Corporation, May, 1972 36 pp.	4.00*
5 - **A Review of Models of the Air Traffic Control Systems** N. Moray and L.D. Reid, University of Toronto, May 1972. 30 pp.	3.00*
6 - **V/STOL Community Annoyance Due to Noise: Proposed Indices and Levels** G.W. Johnston, University of Toronto, Institute for Aerospace Studies, May, 1972. 54 pp.	6.00*
7 - **Regional Transportation Systems and Population Impact Modelling: A Theoretical Development** J.R. Miron, University of Toronto, June 1972. 26 pp.	3.00*
8 - **A Conceptual Approach to Rural Land Use - Transportation Modelling in the Toronto Region** W.C. Found and C.D. Morley, York University, June 1972. 226 pp.	20.00*

*Only photocopies available, printed copies out of stock.

9 - **Platoon Profiles and Link Delay for Optimal Co-ordination of Traffic Signals on Arterial Streets** 5.50*
N. Gartner, University of Toronto, October 1972. 52 pp.

10 - **The Impact of Expressways on Adjacent Apartments: A Case Study of Metropolitan Toronto** 1.50*
J.R. Hitchcock and A. Waterhouse, University of Toronto, February, 1973. 140 pp.

11 - **The Impact of Urban Transportation Investment on Land Value** 10.00*
D.N. Dewees, University of Toronto, February, 1973 87 pp.

12 - **Transportation - A Design Study of a Probable Future Mechanical Storage Drive System** 2.50
R.C. Flanagan and P.R. Palmer, University of Toronto, June, 1973. 139 pp.

13 - **Annoyance Measurements Related to Urban Traffic Noise Exposure** 4.50*
G.W. Johnston and R. Carothers, University of Toronto, August, 1974. 44 pp.

14 - **Some Transportation Aspects of a Sports Stadium** 2.00
W.J. Sproule, University of Toronto, December, 1973. 110 pp.

15 - **An Annotated Bibliography on Planning for Pedestrians** 2.00*
E. Rodgers, University of Toronto, February, 1974. 29 pp.

16 - **Stabilization Policies: Government Expenditures on Transport in Canada and Some Lessons from European Experience** 4.00*
J. Beare, York University, February, 1974. 37 pp.

17 - **An Interactive Transportation Gaming Model for Metropolitan Toronto: Progress Report** 1.75
R.G. Rice, University of Toronto, W.C. Found, York University, and S.F. Gribble, Graduate Student, University of Toronto, April 1974. 79 pp.

18 - **Transportation Planning Techniques: Problems and Prospects: Progress Report** 1.50*
H. Schuster, Economic Develpment Institute of the International Bank for Reconstruction and Development, Washington, D.C. May, 1974. 15 pp.

19 - **The Use of Criteria Weights in Rank Ordering Techniques of Project Evaluation** 2.00*
D.M. Nowlan, University of Toronto, July, 1974. 20 pp.

20 - **The Great Canadian Transportation Information Dilemma** 9.00*
M.H. Lovelock, Canadian Transport Commission and A.L. Poole, Joint Program in Transportation, August, 1974. 89 pp.

21 -	**Capacity of a Signalized Intersection** T.A. Lambe, University of Toronto, October, 1974. 13 pp.	1.50
22 -	**Multiple Queues of Aircraft Under Time-Dependent Conditions: Policy Options for Toronto International Airport** J.H. Bookbinder and H. Luthra, University of Toronto, October, 1974. 27 pp.	3.00
23 -	**Strategy and Tactics for Public Participation in Transportation Planning In North America** B. Wellman, University of Toronto, November, 1974. 35 pp.	3.50*
24 -	**Urban Traffic Noise Annoyance Measurements and Derived Indices** G.W. Johnston and R. Carothers, University of Toronto, December, 1974. 47 pp.	2.25
25 -	**Effects of Changes in Parking Prices and Parking Restrictions on Urban Transport Demands and Congestion Levels** D.W. Gillen, University of Toronto, February, 1975. 52 pp.	5.00*
26 -	**Some Predatory Practices Under Government Regulation** W.A. Jordan, York University, January, 1974. 61 pp.	1.75
27 -	**Land Rent, Land Use and Transport: A Study in the Geographical Foundations of Political Economy** A.J. Scott, University of Toronto, May, 1975. 39 pp.	4.00*
28 -	**Transport, Residential Space and the Urbanization Process** A.J. Scott, University of Toronto, May 1975. 40 pp.	4.00*
29 -	**The Canadian Lake Shipping Industry Today** H.J. Darling, Transportation Economist and G.C. Shaw, York University, August, 1975. 88 pp.	5.00
30 -	**Social Aspects of Urban Transportation: A Bibliographic Review** F. Frisken and G. Emby, York University, September, 1975. 279 pp.	4.50
31 -	**Innovation in Transit in Medium Size Canadian Cities** D. Levy, Graduate Student, Faculty of Environmental Studies, York University, January, 1976. 75 pp.	3.50
32 -	**An Interactive Model for Urban Transportation Decision-Making** M.J.M. Posner, University of Toronto, February, 1976. 24 pp.	3.75
33 -	**A Study of the Effects of a Change in the Price of Transport Services on General Prices in the Canadian Economy** J. B. Beare, York University, April, 1976. 26 pp.	3.75
34 -	**Signal Priority for Transit Vehicles** D.W. Allen, Graduate Student, Dept. of Civil Engineering, University of Toronto, May 1976. 79 pp.	4.00

35 - **JPTRS - Joint Program in Transportation Retrieval System** 4.50
C. Pennell, J. Shipman and A.L. Poole, Joint Program in Transportation Information Services, May, 1976. 125 pp.

36 - **Investment in Residential Construction in Metropolitan Toronto 1960 to 1974** 3.75
R.E. Newby, Graduate Student, Dept. of Political Economy, University of Toronto, June, 1976. 31 pp.

37 - **Canadian Great Lakes Shipping: An Annotated Bibliography** 4.00
S.S. Patterson, Research Librarian, National Transportation Policy Project Group on Canadian Marine Transportation, August, 1976. 72 pp.

38 - **The Effect of Alternative Urban Forms on Two-Mode Transportation System Requirements** 4.00
R.G. Rice, Assistant Professor, Dept. of Civil Engineering, University of Toronto, March, 1977. 54 pp.

39 - **The Transit Systems of Small Cities in Ontario** 5.00
M.H. Perera, Graduate Student, Dept. of Civil Engineering, University of Toronto, April, 1977. 99 pp.

40 - **Metrans: Manual for a Simulation Game for Transportation/Land-Use Planning in Metropolitan Toronto** 4.00
W.C. Found, Geography Department, York University and R.G. Rice, Dept. of Civil Engineering, University of Toronto, April, 1977. 62 pp.

41 - **A Model of Office Rents in Metropolitan Toronto** 3.25
D. Hughes, Urban Transportation Policy Impact Study Group, September, 1976. 38 pp.

42 - **Subjective Information in Statistics** 3.50
S.L. Warner, Dept. of Economics, York University, January, 1978. 20 pp.

43 - **Organizing Information Through Advocate Scoring** 3.50
S.L. Warner, Dept. of Economics, York University, January, 1978. 29 pp.

44 - **A Dynamics Simulation for a High Speed Magnetically Levitated Guided Ground Vehicle** 3.75
D.B. Cherchas, Dept. of Mechanical Engineering, University of Toronto, February, 1978. 39 pp.

45 - **Freight Rates and Transportation Policy** 4.00
D.V.J. Bell, Political Science, York University, March, 1978. 53 pp.

46 - **Refinement and Applications of Time-Space Mapping Techniques** — 4.00
R.A. Wolfe, Graduate Student, Urban & Regional Planning, University of Toronto, April, 1978. 65 pp.

47 - **A Study of Factors Affecting Travel Behaviour and Transportation Attitudes Among Young Adults** — 5.25
F. Frisken and M. Keall, Urban Studies Program, York University, May, 1978. 132 pp.

48 - **Marine Transportation Policy Project Final Report** — 8.75
Marine Transportation Policy Project Group, May, 1978. 365 pp.

49 - **Community and Residential Relocation in the Metropolitan Fringe** — 3.50
J.R. Miron, Dept. of Geography, University of Toronto, June, 1978. 25 pp.

50 - **A Statistical Analysis of Oil Spills in Canada** — 4.00
D. Mackay, Institute for Environmental Studies and Dept. of Chemical Engineering & Applied Chemistry, University of Toronto and A. Wilks, Dept. of Statistics, Princeton University, July, 1978. 61 pp.

51 - **The Multicriteria Choice Problem and Plan Evaluation: A Test of a Method and a Computer Program** — 4.00
B.H. Massam, Dept. of Geography, York University and R.A. Wolfe, Graduate Student, Urban and Regional Planning, University of Toronto, July, 1978. 39 pp.

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D.M. Nowlan, Dept. of Political Economy, University of Toronto, October, 1978. 33 pp.

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M. Kircher, Ph.D. Student, Political Science, York University, December, 1978. 95 pp.

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E.J. Miller, Joint Program in Transportation, F.J. Ahlin and J.H. Bookbinder, Toronto Transit Commission, P.D. Bunt, Barton-Aschman Canada Ltd., R.N. Wolff, Faculty of Management Studies, University of Toronto, November 1980. 136 pp.

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D.B. Freeman, P. Gray (graduate student), S. Maniak (undergraduate student) and G. Menger (student), Department of Geography, York University, September 1981. 173 pp.

79 - **A Study of Airship 6-Degree-of-Freedom Non-Linear Flight Dynamics** 5.25
J.D. DeLaurier, J.R. Evans and H. Scholaert (student), Institute for Aerospace Studies, University of Toronto, July 1981.

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12 - **Choices for the Future** Metropolitan Toronto Transportation Plan Review Summary Report, August, 1979. 150 pp.	5.00

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1 - **Marine Transportation in Canada and the U.S. Great Lakes Region: A Bibliography of Selected References 1950-1975** R.D. Ramlalsingh, Graduate Student, Dept. of Geography, York University, August, 1976. 35 pp.	$ 2.25
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11 - **Safety Estimation Tool Report 2: Safety Prediction Models: A Literature Survey** D.M. Munro (graduate student), Department of Civil Engineering, University of Toronto, February 1982. 82 pp.	4.00

Books and Monographs	Price
Canadian Transit Handbook R.M. Soberman, and H.A. Hazard, Editors, Joint Program in Transportation, 1980. 776 pp.	$20.00
A Catalogue of Transport-Related Computer Programs, Packages and Major Data Sets J. Farnady, Joint Program in Transportation, June, 1978. 69 pp.	3.00
Marine Transportation in Canada - **Research and Development Needs in Canadian Marine Transportation,** C. Bryan, Chairman, Marine Transportation R & D Advisory Board. - **The Regulation of Shipping Conferences in Canada,** I. Bryan, Economics, Ryerson Polytechnical Institute. - **Issues in Current Shipping Policy,** J.G. Day, Director, Canadian Marine Transportation Centre, Dalhousie University. - **The Evolution of Canadian Ports Policy,** E. Dosman, Political Science, York University.	2.00
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Economic Prospects for Canadian Great Lakes Shipping H.J. Darling and G.C. Shaw, 13 pp.	1.00

A package including all five papers is available for $7.50.

Conference Papers

Proceedings of "TELIMOVE" Automated Vehicle Monitoring Conference R.N. Wolff, Editor, September, 1977. 441 pp.	10.00

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In addition to the above publications produced by the Joint Program, a large number of Faculty Associate papers have been published in academic journals or presented at conferences. A partial list follows of some of these papers which were related to Joint Program research activity.

List of Faculty Associates' Publications and Invited Papers Related to Joint Program Research Activity 1976-1982

BELL, D.V.J.
Department of Political Science
York University

1. **Power, Influence and Authority: An Essay in Political Linguistics,** New York: Oxford University Press, pp. xii & 1-131, 1975.

2. "Foreword" to Edgar J. Dosman, **The National Interest.** Toronto: McClelland and Stewart. Canada in Transition Series, 1975.

3. "Regionalism in the Canadian Community." Lead article in section on Regionalism in Paul Fox (ed.), **Politics Canada.** 4th ed. Toronto: McGraw-Hill Ryerson, pp. 79-89, 1977.

4. "Political Linguistics and Political Education." Lead article in **Teaching Politics,** September, pp. 219-244, 1977.

5. **The Roots of Disunity: Canadian Political Culture** (with Lorne J. Tepperman). Toronto: McClelland and Stewart. Canada in Transition Series, pp. vii & 1-262, 1979.

6. "Language and International Politics." Guest Editor. **International Interactions,** Vol. 6, No. 3, pp. 185-321, 1979.

7. "Introduction" to ibid., pp. 185-191, 1979.

8. "Political Linguistics and Events Research." Ibid., pp. 193-207,1979.

9. "The Canadian Mass Media and the Reporting of Transportation Policy" (with Frederick J. Fletcher). **Transportation Research Forum** XX, 1, 1979, pp. 42-47, 1979.

10. "Foreword" to John Roberts and Larry Pratt, **Prairie Capitalism: Power and Influence in the New West** (with Edgar J.E. Dosman). Toronto: McClelland and Stewart. Canada in Transition Series, 1979.

11. "Political Factors Affecting the Mission of the Addiction Research Foundation" (mimeo 62 pages), 1980.

12. "Foreword" to H. Darling, **The Politics of Freight Rates,** Toronto: McClelland and Stewart (with Edgar Dosman), 1980.

13. "Alcohol: Public Education and Social Policy" (with M. Goodstadt et al.) Addiction Research Foundation. 234 pp, 1981.

14. Contributions to four chapters of a report on the "Press and Politics" (with F. Fletcher) commissioned by the Royal Commission on Concentration in the Newspaper Industry. (Kent Commission) 1981.

15. "Political Linguistics and the Study of Power." Conference paper presented to the International Studies Association, Toronto, February, 1976.

16. "Political Linguistics and Political Education." Conference paper presented to the International Political Science Association, Edinburgh, August, 1976.

17. "Political Linguistics and Events Research." Paper presented at the Peace Science Society -- Southern Section Conference, Boca Raton, Florida, April 1978.

18. "The Mass Media and the Reporting of Transportation Policy" (with Frederick J. Fletcher). Paper presented to the Fourteenth Annual Meeting, Canadian Transportation Research Forum, June, 1979. (One of three papers selected to be re-presented at the Transportation Research Forum, Chicago, October, 1979.)

19. "Alcohol in Ontario: Its Costs and Benefits." Paper prepared under contract to Ontario Ministry of Health, September, 1980.

20. "Political Linguistics." Paper presented to Applied Linguistics Research Working Group (A.L.R.W.G.) Glendon College, March, 1981.

21. "New Directions for Political Linguistics." Paper presented to the American Political Science Association Annual Meeting, New York, September, 1981.

22. In progress, review article on the emerging field of political linguistics.

BIEMILLER, A.J.
Institute of Child Study
University of Toronto

1. "Estimated Annual Costs of Urban Transit Routes." Published in **Proceedings, 21st Annual Meeting of Transportation Research Forum,** Richard B. Cross Co., Oxford, Indiana: 1980, pp 568-577.

BOOKBINDER, J.H.
Toronto Transit Commission

1. "Multiple Queues of Aircraft under Time-Dependent Conditions," paper presented at **The Institute of Management Sciences,** Philadelphia: March, 1976.

2. "The Dynamic Transportation Problem: A Survey," Invited Paper, **Operations Research Society of America,** San Francisco: May, 1977.

BORINS, S.F.
Faculty of Administrative Studies
York University

1. "The Effects of Non-Optimal Pricing and Investment Policies for Transportation Facilities," **Transportation Research** XVI B, January 1982, 17-29.

2. "The Effect of Pricing Policy on the Optimum Timing of Investments in Transport Facilities," **Journal of Transport Economics and Policy** XV, May 1981, 121-134.

3. "The Economic Effects of Non-Optimal Pricing and Investment Policies for Substitutable Transport Facilities," submitted for publication November 1981.

BYER, P.H.
Department of Civil Engineering
University of Toronto

1. with A. Bacchus, "Inferring the Value of Life from Public Safety Investments," **Journal of Transport Economics and Policy**, under review.

CARTWRIGHT, T.
Faculty of Environmental Studies
York University

1. **Canadian Aircraft Market Summary**, monthly bulletin of aircraft prices and sales, numbers 1-31 (September 1980 to March 1982), still in progress.

2. **Annual Blue Book of Aircraft Prices in Canada**, annual summary of aircraft prices and sales. Two issues (1980 and 1981). Agreement signed with Maclean-Hunter for publication of 1982 edition.

3. Various articles for **Airborne** magazine, a Canadian trade publication.

CHERCHAS, D.B.
Department of Mechanical Engineering
University of British Columbia

1. with Jackson, J., "Dynamic Analysis of a Flexible Vehicle-Flexible Guideway System with Random Guideway Roughness Input." **High Speed Ground Transport, Jour.**, Vol. II, No. 1, pp. 19-51, May 1977.

2. "A Dynamics Simulation for a High Speed Magnetically Levitated Guided Ground Vehicle," **ASME Journal of Dynamic Systems Measurement and Control**, Vol. 101, pp. 223-229, Sept. 1979.

3. "Determination of Railway Wheel Climb Probability based on the Derailment Coefficient," **Journal of the Franklin Inst.**, Vol. 322, No. 1, pp. 31-40, July 1981.

4. with Townsend, M., "Determination of the Size of the Storage Chamber and the Charging Pressure for Air Bags Used in Automotive Passive Restraint Systems," **International Journal of Vehicle Design**, Vol. 1, No. 2, pp. 143-150, Feb. 1980.

5. with English, G.W., et al., "Prediction of the Probability of Rail Vehicle Derailment During Grade Crossing Collisions," **ASME Journal of Dynamic Systems Measurement and Control** (accepted for publication, Nov. 13, 1981).

6. with Jackson, J., "Two-Dimensional Dynamics Analysis of a Flexible Vehicle-Flexible Guideway System with Random Guideway Roughness Input," paper presented at the Third Symposium of Engineering Applications of Solid Mechanics, University of Toronto, June 7-8, 1976.

7. with McLaren, W.S., English, G.W., Broekhoven, L., Ritchie, N., "A Computer Simulation of Rail Vehicle Derailment During Grade Crossing Collisions," Invited paper, The Eighties: A New Rail Era, Biennial CIGGT Seminar, Queen's University, Kingston, Ontario, Jan. 1978.

8. "Development of a Design for a Computer Model to Study Derailment in Railway Grade Crossing Collisions: Final Report,"", ENDEV R 76-3, Dec. 1976.

9. "Dynamics of a High Speed Magnetically Levitated Guided Ground Vehicle," UTME TP 7802, Jan. 1978. ENDEV R 78-2, Nov. 1978.

10. with G.W. English, et al., "Grade Crossing Collision Analysis by Computer Simulation," Canadian Institute of Guided Ground Transport, Research Report No. 79-14, November 1979.

11. "Dynamics of a Magnetically Levitated Vehicle," scholarly address given at Engcon 1977, Toronto, April 1977.

CUBUKGIL, A.
University of Toronto/York University
Joint Program in Transportation

1. with E.J. Miller, "Occupational Status and the Journey-to-work." Submitted to **Transportation**, July 1981.

2. with E.J. Miller, "Residential Location, Housing and the Journey-to-work." Submitted to **Environment and Planning**, April 1981.

DAY, GEORGE S.
Faculty of Management Studies
University of Toronto

1. co-authored with Christopher Lovelock and John Bateson, **Marketing Urban Public Transportation**, in press New York: Praeger, 1982.

DeLAURIER, J.D.
Institute for Aerospace Studies
University of Toronto

1. "Airship Dynamic Stability," AIAA Paper No. 79-1591, AIAA Lighter-than-Air Technology Conference, Palo Alto, California, July 11-13, 1979.

2. "The Shenandoah Flies Again: A Computer Simulation," AIAA Lighter-than-Air Systems Technology Conference, Paper No. 81-1325, July 1981.

3. "Airship Survivability in Atmospheric Turbulence," AIAA Lighter-than-Air Systems Technology Conference, Paper No. 81-1323, July 1981.

DEWEES, D.
Institute for Policy Analysis
University of Toronto

1. "Simulations of Traffic Congestion in Toronto," **Transportation Research**, 12, June 1978, pp. 153-161.

2. "Estimating the Time Costs of Highway Congestion," **Econometrica**, 47, November, 1979, pp. 1499-1512.

DOOLEY, J.E.
Faculty of Management Studies
University of Toronto

1. "A Framework for Environmental Impact Identification," **Journal of Environmental Management** 9 (1979), 279-287.

DOSMAN, E.J.
Department of Political Science
York University

1. **The National Interest: The Politics of Northern Development**, McClelland and Stewart, 1975.

2. **The Arctic in Question,** Oxford University Press, 1976.

3. "The Northern Sovereignty Crisis, 1968-70," **The Arctic in Question,** ed. E.J. Dosman, O.U.P. 1976.

4. "The Marine Mode: Oil, Gas and Arctic Shipping," **Alternatives,** Vol. 7, No. 3, 1978.

5. "The MacKenzie Valley Pipeline Inquiry: The Politics of Catharsis," (Review article) **Canadian Ethnic Studies,** Vol. X, No. 1, 1978.

6. "Strategic Aspects of Canadian Arctic Waters," **Navy International,** Maritime World Ltd., October 1978.

7. "Canadian Ports Policy: The Canada Ports Act, Background and Prospects" (**Research Seminar Series,** Canadian Transport Commission, Spring 1978).

8. "Arctic Marine Transportation and Public Policy in Canada," **Marine Transportation and High Arctic Development** (Canadian Arctic Resources Committee, Ottawa 1979).

9. "Environmental Policy in Arctic Waters," **Resources and the Environment,** ed., O.P. Dwivedi (McClelland and Stewart, March 1980).

10. "The Potential for Part-time Labour in Urban Transit" (co-authored with Ian Moore), **Roads and Transportation Association of Canada Forum,** Vol. 3, No. 2, Spring 1981.

11. **Bureaucracy and Innovation: Ports Policy and Public Sector Management in Canada** (forthcoming 1982), IRPP (Institute for Research on Public Policy).

12. **The Evolution of Ports Policy: Public Sector Management in Canada** (forthcoming 1983), IRPP (Institute for Research on Public Policy.)

FLETCHER, F.J.
Political Science
York University

1. "The Mass Media and the Reporting of Transportation Policy" (with David Bell), **Transportation Research Forum,** XX.1 (1979), 42-47.

2. "The Mass Media and the Political Process" (with Daphne Gottlieb) in M.S. Whittington and G. Williams, eds., **Canadian Politics in the 1980s** (1981, Methuen), 142-146 (section on public policy).

3. **The Newspaper and Public Affairs,** Volume 7 of Research Studies on the Newspaper Industry, Royal Commission on Newspapers, 1982, ch.2 (with David Bell), esp. pp. 17-22.

FOUND, W.C.
Dept. of Geography and
Faculty of Environmental Studies
York University

1. with C.D. Morley, "A Behavioural Typology of Land Uses for Metropolitan Rural Space -- The Case of Toronto," in **Agricultural Typology and Land Use** (L.G. Reeds, editor), McMaster University, Hamilton, 1973, pp. 295-313.

2. with C.D. Morley, "Land Use Classification in Rural Sections of Metropolitan Regions," **International Geography, 1972**, Montreal, 1972, pp. 1093-1095.

3. with C.D. Morley, "Rural Road Networks and Land Use Change," **International Geography, 1972**, Montreal, 1972, pp. 1207-1209.

4. "An APL Computer Model for Transportation Decision-Making in Metropolitan Toronto," **C.A.G. 74 Programme and Abstracts**, May, 1974, pp. 71-73.

FRISKIN, F.
Urban Studies Programme
York University

1. "The Need to Interpret Social Processes in Transportation Planning and Development." Paper presented at a conference on Canadian transportation policy sponsored by the Roads and Transport Association of Canada, Toronto, April 4, 1975.

2. Summary comments to session on "Neighbourhood and other land use considerations," paper presented at Transportation Research Board Conference on Transportation Land Use Planning Abroad, Ithaca, N.Y., July 22, 1975.

3. "Intergovernmental Administrative Differences in Defining Clients and Selecting Priorities: The Case of Public Transportation Assistance in Metropolitan Toronto." Paper prepared for a panel on "Intergovernmental Administrative Relations and Clientele Responsiveness as Cross-Cultural Administration," American Society for Public Administration National Conference, Phoenix, Arizona, April 9-12, 1978.

4. "Transit Promotion as a User-Centered Activity." Background paper prepared for a panel on "Customer Perceptions of Public Transit," Canadian Urban Transit Association Fall Meeting, Toronto, Ontario, November 1980.

5. "Factors Contributing to Public Service Equalization in a Restructured Metropolis: The Case of Toronto." Paper prepared for the Annual Meeting of the Canadian Political Science Association, Dalhousie University, Halifax, May 1981.

GILLEN, D.W.
School of Business & Economics
Sir Wilfrid Laurier University

1. "Parking Prices and Parking Restrictions: The Effects for Urban Mode Choice and Congestion," **Transportation Research Forum Proceedings** (1975), 240-247.

2. "Parking Policies and Mode Choice," **Transportation Research Record**, No. 637 (1978), 46-51.

3. "Estimation and Specification of the Effects of Parking Prices on Urban Transport Mode Choice," **Journal of Urban Economics**, No. 4 (1977), 186-199.

4. "Parking Policy, Parking Location Decisions and the Distribution of Congestion," **Transportation**, No. 7 (1978), 69-85.

5. "Parking Location and Transit Demand: The Case of Endogenous Attributes in Disaggregate Mode Choice Models" (with R.B. Westin), **Journal of Econometrics**, No. 8 (1978), 75-101.

6. "An Economic Analysis of Parking and the Influence of Parking on Urban Transport Demands," research report to North Atlantic Treaty Organization, Brussels, Belgium, September, 1974, 200 pages.

7. "Parking Policies and Mode Choice," paper presented at the 75th Annual Meeting of the Transportation Research Board, National Academy of Sciences, Washington, D.C., January, 1975.

8. "Parking Prices and Parking Restrictions: The Effects for Urban Mode Choice and Congestion," paper presented at the Meetings of the Transportation Research Forum, Toronto, November, 1975.

9. "Location Decisions and Transportation Demand" (with R. Westin), paper presented at Canadian Economic Association Meetings, Quebec City, June, 1976. Also presented at Mathematical Social Science Board Workshop on the Theory and Measurement of Economic Choice Behaviour and NSF-NBER Conference on Decision Rules and Uncertainty, joint session, University of California, Berkeley, June 19-22, 1976.

10. "Summary and Basic Approach" in **A Public Policy Direction for the Highway Transportation of Goods. Part VIII Appendices (Final Report of the Select Committee of the Legislature on Highway Transportation of Goods)**. 1977, Volume 2, pp G-136-161.

11. "A Simultaneous Model of Household Residential Location and Transportation Choice," (with R. Westin) a paper presented at the NSF-NBER Conference on Decision Rules under Uncertainty, Carnegie-Mellon University, March 1978. Also presented at the Conference of Theoretical Urban Economics, Queen's University, June 1978.

HAINES, G.H, Jr.
Faculty of Management Studies
Erindale College
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